



# UNITED STATES PATENT AND TRADEMARK OFFICE

74  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/686,120	10/11/2000	Gilbert Ho Yin Tsang	SNY-P3965	4933
24337	7590	12/17/2004	EXAMINER	
<b>MILLER PATENT SERVICES</b> 2500 DOCKERY LANE RALEIGH, NC 27606				SALTARELLI, DOMINIC D
		ART UNIT		PAPER NUMBER
				2611

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/686,120	TSANG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Dominic D Saltarelli	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 11 October 2000.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-71 is/are pending in the application.
  - 4a) Of the above claim(s) 38-57 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-37 and 58-71 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/11/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

**DETAILED ACTION**

***Election/Restrictions***

1. This application contains claims directed to the following patentably distinct species of the claimed invention: Group 1, identified by claims 1-37 and 58-71 is directed towards a set top device determining the IP addresses of local network devices from periodic broadcasts of said IP addresses. Group 2, identified by claims 38-57 is directed towards a set top device determining the IP addresses of local network devices by actively polling said devices for their IP addresses.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with Jerry Miller on November 2, 2004 a provisional election was made with traverse to prosecute the invention of group 1, claims 1-37 and 58-71. Affirmation of this election must be made by applicant in replying to this Office action. Claims 38-57 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Specification***

3. The abstract of the disclosure is objected to because on line 4, "boradcast" should be changed to "broadcast". Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2, 3, 5, 12, 13, 14, 15, 17, 18, 19, 21, 27, 28, 29, 30, 32, 58, 59, 60, and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (6,618,387) [Liu] in view of Lim et al. (5,884,024) [Lim].

Regarding claims 1, 17, and 58, Liu discloses a set top box (fig. 5, host 85, col. 9, lines 1-12) configured with a modem [managed component] (fig. 5, cable modem 30) and a main circuit board (on which the memory and CPU of host 85 is disposed, col. 9, lines 1-12).

Liu fails to disclose a method of enabling the main circuit board to determine the IP address of the modem comprising, at the modem, periodically broadcasting a discovery packet from the modem to a broadcast address, the discovery packet comprising the IP address of the modem, and at the main circuit board, receiving the broadcast discovery packet from the modem and ascertaining the IP address of the modem from the broadcast discovery packet.

In an analogous art, Lim teaches assignment of an IP address to a modem which involves IP 'leasing' according to the Dynamic Host Configuration Protocol [DHCP] (col. 6, lines 28-44), wherein all packets sent from the modem (for the purpose of renewing said lease) include the IP address of the modem (as all packets include the source IP address, col. 5, lines 49-64) and said packets for renewing the lease are broadcast to a broadcast address periodically.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method and apparatus of Liu to include periodically broadcasting a discovery packet from the modem to a broadcast address, the

discovery packet comprising the IP address of the modem, as taught by Lim, for the benefit of utilizing the standardized IP leasing scheme described by DHCP, a standardized and efficient means for assigning and managing IP address of devices over an IP network. Said combination results in receiving the broadcast discovery packet at the main circuit board from the modem, as the cable modem driver (running HAL 60, shown in fig. 5), which handles the functions for initializing and controlling the cable modem (col. 10, lines 53-60), under which the renewal of an IP lease is included, is software running off of the main circuit board (Liu, col. 9, lines 1-12), thus the discovery packet created by the modem first passes through the modem driver before being broadcast, and the modem driver is located at the main circuit board.

Liu and Lim fail to disclose ascertaining the IP address of the modem from the broadcast discovery packet at the main circuit board.

In the background of applicant's disclosure, applicant admits that it is known for main circuit boards to require knowing the IP address of a modem (page 2, lines 6-13).

It would have been obvious at the time to a person of ordinary skill in the art to modify the method and apparatus disclosed by Liu and Lim to ascertain the IP address of the modem at the main circuit board using the broadcast discovery packet, for the benefit of learning the IP address of the modem, as taught by applicant's admitted prior art. Liu and Lim suggest this manner of learning the modem's IP address, as Lim teaches a manner of ascertaining IP addresses by a

device is performed by inspecting broadcast packets which pass through a device (col. 5, lines 49-64).

Regarding claims 2, 3, 18, 19, 59, and 60, Lim further discloses the discovery packet comprises an authentication code made up of a multiple character ASCII string (the packet includes the modem's MAC address, a 12 character ASCII string which uniquely identifies the modem, col. 6, lines 38-44), providing unique verification information which enhances security by verifying the source of said packet.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method and apparatus disclosed by Liu and Lim to include an authentication code in the discovery packet, as taught by Lim, wherein the main circuit board would inspect the authentication code to ensure that the IP address in the discovery packet originated at the modem, for the benefit of enhancing security by authenticating the packet.

Regarding claims 5, 21, and 62, Liu and Lim fail to disclose the authentication code is a 10 character ASCII character string.

Examiner takes official notice that it is notoriously well known in the art to utilize 10 character ASCII character strings to uniquely identify devices, as this would provide a very high number of unique character strings, thus allowing the number of authentication codes possible to be the number of available ASCII

characters raised to the 10<sup>th</sup> power, supporting a large number of devices and making it nearly impossible to guess a device's authentication code randomly, providing a measure of security.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method and apparatus disclosed by Liu and Lim to comprise the authentication code as a 10 character ASCII character string, for the benefit of supporting a large number of unique devices and enhancing security.

Regarding claims 12 and 27, Liu and Lim disclose the method and apparatus of claims 1 and 17, but fail to disclose the discovery packet is transmitted approximately every 30 seconds.

Examiner takes official notice that it is notoriously well known in the art to perform periodic broadcasts of information every 30 seconds, as this is a convenient time frame for periodic broadcasts.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method and apparatus disclosed by Liu and Lim to transmit the discovery packet approximately every 30 seconds, for the benefit of performing the periodic broadcast in a convenient time frame.

Regarding claims 13 and 28, Liu and Lim disclose the method and apparatus of claims 1 and 17, wherein the modem is a cable modem (Liu, fig. 5, cable modem 30).

Regarding claims 14, 15, 29, and 30, Liu and Lim disclose the method and apparatus of claims 1 and 17, but fail to disclose the modem is a DSL or satellite modem.

Examiner takes official notice that DSL and satellite modems are notoriously well known in the art, as DSL modems provide broadband data service over telephone lines and satellite modems provide broadband data services through satellite links.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method and apparatus disclosed by Liu and Lim to include a DSL or satellite modem, taking advantage of the broadband data service each offers, respectively.

Regarding claim 32, Liu and Lim disclose the apparatus of claim 17, wherein the means for periodically transmitting a discovery packet inherently includes the use of a programmed processor, as there are no other means available by which packets may be processed and transmitted that do not include programmed processors.

6. Claims 7-10, 23-26, 64, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu and Lim as applied to claims 1, 17, and 58 above, and further in view of Koperda (5,790,806).

Regarding claims 7, 23, and 64, Liu and Lim disclose the method and apparatus of claims 1, 17, and 58, but fail to disclose the discovery packet further comprises a status code indicative of the running status of the modem.

In an analogous art, Koperda teaches providing status information from a modem to a main circuit (col. 12, lines 13-19), for the benefit of allowing the main circuit to monitor the health and status of the modem.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method and apparatus disclosed by Liu and Lim to include a status code indicative of the running status of the modem, as taught by Koperda, for the benefit of allowing the main circuit to monitor the health and status of the modem for enhanced reliability and troubleshooting purposes.

Regarding claims 9, 25, and 26, Liu, Lim, and Koperda disclose the method and apparatus of claims 7 and 23, but fail to disclose the status code comprises a four byte integer code representing the running status of the modem.

Examiner takes official notice that it is notoriously well known in the art to utilize 4 byte integers as codes within packets, as this represents a very large number of possible unique codes, providing a very comprehensive selection of codes for transmitting information.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method and apparatus disclosed by Liu, Lim, and Koperda to

utilize four byte integer codes representing the running status of the modem, for the benefit of having a wide range of possible status codes available and allowing for very comprehensive reporting of status information.

Regarding claims 8, 10, 24, and 65, Liu, Lim, Koperda disclose the method and apparatus of claims 7, 9, 23, and 64, but fail to disclose the status code is encrypted.

Examiner takes official notice that it is notoriously well known in the art to encrypt data packets to enhance security.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method and apparatus of Liu, Lim, and Koperda to encrypt the status code, for the benefit of enhancing security.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu, Lim, and Koperda as applied to claim 7 above, and further in view of Rahamim et al. (5,764,694) [Rahamim].

Regarding claim 11, Liu, Lim, and Koperda disclose the method of claim 7, but fail to disclose displaying a status of the modem on a display connected to the main circuit board.

In an analogous art, Rahamim teaches displaying the status of a modem on a display connected to the host computer (col. 4, lines 15-27), for the benefit of providing feedback to a user regarding the status of the modem.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method disclosed by Liu, Lim, and Koperda to include displaying a status of the modem on a display connected to the main circuit board, as taught by Rahamim, for the benefit of providing feedback to a user regarding the status of the modem, alerting the user of proper operation and any errors that may occur.

8. Claims 4, 6, 16, 20, 22, 61, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu and Lim as applied to claims 2, 3, 5, 19, 21, 59, and 62 above, and further in view of Blumenau et al. (US 2003/0115324 A1) [Blumenau].

Regarding claims 4, 6, 20, 22, 61, and 63, Liu and Lim disclose the method and apparatus of claims 3, 5, 19, 21, 59, and 62, but fail to disclose the authentication code is encrypted.

In an analogous art, Blumenau teaches encrypting authentication codes to enhance security (paragraph 52).

It would have been obvious at the time to a person of ordinary skill in the art to modify the method of Liu and Lim to encrypt the authentication code, for the benefit of enhancing security.

Regarding claim 16, Liu and Lim disclose the method of claim 2, wherein said cable modem is a network device, wherein said network device periodically broadcasts a discovery packet from the network device to a broadcast address

(as described regarding claim 1), the discovery packet comprising the IP address of the network device (as all packets include the source IP address, Lim, col. 5, lines 49-64) and a signature of the network device (Lim, 'lease identification cookie', col. 6, lines 28-44), and at the main circuit board, receiving the broadcast discovery packet from the network device (as described regarding claim 1) and ascertaining the IP address of the network device from the broadcast discovery packet (as described regarding claim 1).

Liu and Lim fail to disclose authenticating the network device from the network device's signature.

In an analogous art, Blumenau teaches authenticating devices that connect to a second device through the use of signatures (expected identifiers which assure the identities of requesting hosts, paragraph 52), enhancing the security of a system.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method disclosed by Liu and Lim to include authenticating the network device from the network device's signature, as taught by Blumenau, for the benefit of enhancing security.

9. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu and Lim, as applied to claim 17 above, and further in view of Rahamim.

Regarding claim 31, Liu and Lim disclose the apparatus of claim 17, but fail to disclose displaying a status of the modem on a display connected to the main circuit board.

In an analogous art, Rahamim teaches displaying the status of a modem on a display connected to the host computer (col. 4, lines 15-27), for the benefit of providing feedback to a user regarding the status of the modem.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Liu and Lim to include displaying a status of the modem on a display connected to the main circuit board, as taught by Rahamim, for the benefit of providing feedback to a user regarding the status of the modem, alerting the user of proper operation and any errors that may occur.

10. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liu and Lim as applied to claim 18 above, and further in view of Lee (6,005,937) and Blumenau.

Regarding claim 33, Liu and Lim disclose the apparatus of claim 18, but fail to disclose further comprising a network device interconnected with the main circuit board, means, residing within said network device for periodically transmitting a discovery packet from said network device to said main circuit board, and wherein the discovery packet comprises at least an IP address of the network device and a signature, wherein the main circuit board distinguishes between the modem and the network device by the signature.

In an analogous art, Lee teaches incorporating plural modules into a set top box (col. 4, lines 52-65) including a separately addressable network interface module (fig. 1, data communication module 170, col. 5, lines 40-61) interconnected with the main circuit board (fig. 1, control PCB 110) for enhanced flexibility.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Liu and Lim to include a separately addressable network device interconnected with the main circuit board for increasing the flexibility of the set top box by allowing it to connect to another type of network using the network device. The device is separately addressable, and thus has its own IP address, and conforms to the same form of IP address notification as the modem.

Liu, Lim, and Lee fail to disclose the main circuit board distinguishes between the modem and the network device by the signature.

In an analogous art, Blumenau teaches using identifier information to verify individual devices and discriminate between them (paragraphs 51 and 52) to enhance security.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Liu, Lim, and Lee to include distinguishing between the modem and network device by the signatures provided by each, as taught by Blumenau, for the benefit of enhancing security,

for example, by preventing one device from copying another to redirect information in any unauthorized manner.

11. Claims 34-37 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Lim, Koperda, and Rahamim.

Regarding claim 34, Liu discloses a set top box (fig. 5, host 85, col. 9, lines 1-12) comprising a modem (fig. 5, cable modem 30), a main circuit board interconnected with the modem via an interconnection (on which the memory and CPU of host 85 is disposed, col. 9, lines 1-12), and a programmed processor residing within said modem (an inherent feature of all modems).

Liu fails to disclose transmitting a discovery packet from said modem to said main circuit board at intervals of approximately 30 seconds, wherein the discovery packet comprises an IP address of the modem, and an encrypted ten character ASCII authentication code, and wherein the main circuit board, upon receiving the discovery packet inspects the authentication code to assure that the IP address in the discovery packet originated at the modem, and wherein the discovery packet further comprises a four byte integer status code indicative of a running status of the modem, and a display, coupled to the main circuit board, displaying the status of the modem.

In an analogous art, Lim teaches assignment of an IP address to a modem which involves IP ‘leasing’ according to the Dynamic Host Configuration Protocol [DHCP] (col. 6, lines 28-44), wherein all packets sent from the modem

(for the purpose of renewing said lease) include the IP address of the modem (as all packets include the source IP address, col. 5, lines 49-64) and said packets for renewing the lease are broadcast to a broadcast address periodically.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method of Liu to include periodically broadcasting a discovery packet from the modem to a broadcast address, the discovery packet comprising the IP address of the modem, as taught by Lim, for the benefit of utilizing the standardized IP leasing scheme described by DHCP, a standardized and efficient means for assigning and managing IP address of devices over an IP network. Said combination results in receiving the broadcast discovery packet at the main circuit board from the modem, as the cable modem driver (running HAL 60, shown in fig. 5), which handles the functions for initializing and controlling the cable modem (col. 10, lines 53-60), under which the renewal of an IP lease is included, is software running off of the main circuit board (Liu, col. 9, lines 1-12), thus the discovery packet created by the modem first passes through the modem driver before being broadcast, and the modem driver is located at the main circuit board.

Lim further discloses the discovery packet comprises an authentication code made up of a multiple character ASCII string (the packet includes the modem's MAC address, a 12 character ASCII string which uniquely identifies the modem, col. 6, lines 38-44), providing unique verification information which enhances security by verifying the source of said packet.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Liu and Lim to include an authentication code in the discovery packet, as taught by Lim, wherein the main circuit board would inspect the authentication code to ensure that the IP address in the discovery packet originated at the modem, for the benefit of enhancing security by authenticating the packet.

Liu and Lim fail to disclose the periodic intervals are approximately 30 seconds, and the discovery packet authentication code is an encrypted 10 character ASCII authentication code, and wherein the discovery packet further comprises a four byte integer status code indicative of a running status of the modem, and a display, coupled to the main circuit board, displaying the status of the modem.

Examiner takes official notice that it is notoriously well known in the art to utilize 10 character ASCII character strings to uniquely identify devices, as this would provide a very high number of unique and secured character strings, thus allowing the number of authentications codes possible to be the number of available ASCII characters raised to the 10<sup>th</sup> power, supporting a large number of devices and making it nearly impossible to guess a device's authentication code randomly providing a measure of security.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Liu and Lim to comprise the

authentication code as a 10 character ASCII character string, for the benefit of supporting a large number of unique devices and enhancing security.

Liu and Lim fail to disclose the periodic intervals are approximately 30 seconds, and the discovery packet authentication code is encrypted, and wherein the discovery packet further comprises a four byte integer status code indicative of a running status of the modem, and a display, coupled to the main circuit board, displaying the status of the modem.

Examiner takes official notice that it is notoriously well known in the art to encrypt data packets to enhance security.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Liu and Lim to include encrypting the authentication code, to enhance security.

Liu and Lim fail to disclose the periodic intervals are approximately 30 seconds, and wherein the discovery packet further comprises a four byte integer status code indicative of a running status of the modem, and a display, coupled to the main circuit board, displaying the status of the modem.

Examiner takes official notice that it is notoriously well known in the art to perform periodic broadcasts of information every 30 seconds, as this is a convenient time frame for periodic broadcasts.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Liu and Lim to transmit the discovery

packet approximately every 30 seconds, for the benefit of performing the periodic broadcast in a convenient time frame.

Liu and Lim fail to disclose the discovery packet further comprises a four byte integer status code indicative of a running status of the modem, and a display, coupled to the main circuit board, displaying the status of the modem.

In an analogous art, Koperda teaches providing status information from a modem to a main circuit (col. 12, lines 13-19), for the benefit of allowing the main circuit to monitor the health and status of the modem.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Liu and Lim to include a status code indicative of the running status of the modem, as taught by Koperda, for the benefit of allowing the main circuit to monitor the health and status of the modem for enhanced reliability and troubleshooting purposes.

Liu, Lim, and Koperda fail to disclose the status code is a four byte integer, and a display, coupled to the main circuit board, displaying the status of the modem.

Examiner takes official notice that it is notoriously well known in the art to utilize 4 byte integers as codes within packets, as this represents a very large number of possible unique codes, providing a very comprehensive selection of codes for transmitting information.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Liu, Lim, and Koperda to utilize four byte

Art Unit: 2611

integer codes representing the running status of the modem, for the benefit of having a wide range of possible status codes available and allowing for very comprehensive reporting of status information.

Liu, Lim, and Koperda fail to disclose a display, coupled to the main circuit board, displaying the status of the modem.

In an analogous art, Rahamim teaches displaying the status of a modem on a display connected to the host computer (col. 4, lines 15-27), for the benefit of providing feedback to a user regarding the status of the modem.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Liu, Lim, and Koperda to include displaying a status of the modem on a display connected to the main circuit board, as taught by Rahamim, for the benefit of providing feedback to a user regarding the status of the modem, alerting the user of proper operation and any errors that may occur.

Regarding claim 35, Liu, Lim, Koperda, and Rahamim disclose the apparatus of claim 34, wherein the modem is a cable modem (Liu, fig. 5, cable modem 30).

Regarding claims 36 and 37, Liu, Lim, Koperda, and Rahamim disclose the apparatus of claim 34, but fail to disclose the modem comprises a DSL modem or a satellite modem.

Examiner takes official notice that DSL and satellite modems are notoriously well known in the art, as DSL modems provide broadband data service over telephone lines and satellite modems provide broadband data services through satellite links.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Liu, Lim, Koperda, and Rahamim to include a DSL or satellite modem, taking advantage of the broadband data service each offers, respectively.

12. Claims 66-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Liu and Lim.

Regarding claim 66, Lee discloses a set top box (fig. 1, decoder 100) comprising first (fig. 1, modem 140) and second (fig. 1, data communication module 170) managed components, and a main circuit board (fig. 1, control PCB 110) interconnected to the first and second managed components via an interconnection (the means by which the control PCB communicates with the modules).

Lee fail to disclose means, residing within each of said first and second managed components, for periodically transmitting a discovery packet from each said managed component to said main circuit board, and wherein the discovery packet comprises at least an IP address of the managed component from which it was transmitted.

In an analogous art, Liu teaches using managed components (cable modems manufactured by different manufacturers, col. 5, lines 5-15, 42-57) which share processing resources with the main circuit board of the system (the modem driver, which facilitates the transmission of packets, is run from the main circuit board, col. 9, lines 1-12), thus packets generated by said components first pass through the main circuit board before being broadcast (as the driver which manages the data packets is running off of the main circuit board, col. 10, lines 53-65), allowing disparate components to be utilized in a set top box while remaining separately addressable, which is a security enhancement (col. 5, lines 5-15).

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Lee to include means for transmitting packets from each managed component to said main circuit board, as taught by Liu, for the benefit of allowing the managed components to remain separately addressable, and thus more secure, while sharing processing resources with the main circuit board, making the managed components themselves cheaper.

Lee and Liu fail to disclose periodically transmitting a discovery packet from each said managed component wherein the discovery packet comprises at least an IP address of the managed component from which it was transmitted.

In an analogous art, Lim teaches assignment of an IP address to a modem which involves IP 'leasing' according to the Dynamic Host Configuration Protocol [DHCP] (col. 6, lines 28-44), wherein all packets sent from the modem

(for the purpose of renewing said lease) include the IP address of the modem (as all packets include the source IP address, col. 5, lines 49-64) and said packets for renewing the lease are broadcast to a broadcast address periodically.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus of Lee and Liu to include periodically broadcasting a discovery packet from each managed component to a broadcast address, the discovery packet comprising the IP address of the modem, as taught by Lim, for the benefit of utilizing the standardized IP leasing scheme described by DHCP, a standardized and efficient means for assigning and managing IP address of devices over an IP network. Said combination results in receiving the broadcast discovery packet at the main circuit board from the modem, as the cable modem driver (running HAL 60, shown in fig. 5 of Liu), which handles the functions for initializing and controlling the cable modem (Liu, col. 10, lines 53-60), under which the renewal of an IP lease is included, is software running off of the main circuit board (Liu, col. 9, lines 1-12), thus the discovery packet created by the modem first passes through the modem driver before being broadcast, and the modem driver is located at the main circuit board.

Regarding claim 67, Lim further discloses the discovery packet comprises an authentication code, providing unique verification information for identifying the identity of the source, which enhances security by verifying the source of said packet.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Lee, Liu, and Lim to include an authentication code in the discovery packet, as taught by Lim, wherein the main circuit board would inspect the authentication code to identify which device the IP address in the discovery packet originated from, for the benefit of enhancing security by authenticating the packet.

Regarding claim 68, Lim further discloses the authentication code is a multiple character ASCII string (the packet includes the modem's MAC address, a 12 character ASCII string which uniquely identifies the modem, col. 6, lines 38-44).

13. Claim 69 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee, Liu, and Lim as applied to claim 67 above, and further in view of Blumenau.

.Regarding claim 69, Lee, Liu, and Lim disclose the apparatus of claim 67, but fail to disclose the authentication code is encrypted.

In an analogous art, Blumenau teaches encrypting authentication codes to enhance security (paragraph 52).

It would have been obvious at the time to a person of ordinary skill in the art to modify the method of Lee, Liu, and Lim to encrypt the authentication code, as taught by Blumenau, for the benefit of enhancing security.

14. Claims 70 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee, Liu, Lim, and Blumenau as applied to claim 69 above, and further in view of Koperda.

Regarding claim 70, Lee, Liu, Lim, and Blumenau disclose the apparatus of claim 69, but fail to disclose the discovery packet further comprises a status code indicative of the running status of the managed component.

In an analogous art, Koperda teaches providing status information from a modem to a main circuit (col. 12, lines 13-19), for the benefit of allowing the main circuit to monitor the health and status of the modem.

It would have been obvious at the time to a person of ordinary skill in the art to modify the apparatus disclosed by Lee, Liu, Lim, and Blumenau to include a status code indicative of the running status of the managed component, as taught by Koperda, for the benefit of allowing the main circuit to monitor the health and status of the modem for enhanced reliability and troubleshooting purposes.

Regarding claim 71, Lee, Liu, Lim, Blumenau, and Koperda disclose the apparatus of claim 70, but fail to disclose the status code is encrypted.

Examiner takes official notice that it is notoriously well known in the art to encrypt data packets to enhance security.

It would have been obvious at the time to a person of ordinary skill in the art to modify the method of Lee, Liu, Lim, Blumenau, and Koperda to encrypt the status code, for the benefit of enhancing security.

### ***Conclusion***

15. The following are suggested formats for either a Certificate of Mailing or Certificate of Transmission under 37 CFR 1.8(a). The certification may be included with all correspondence concerning this application or proceeding to establish a date of mailing or transmission under 37 CFR 1.8(a). Proper use of this procedure will result in such communication being considered as timely if the established date is within the required period for reply. The Certificate should be signed by the individual actually depositing or transmitting the correspondence or by an individual who, upon information and belief, expects the correspondence to be mailed or transmitted in the normal course of business by another no later than the date indicated.

## Certificate of Mailing

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to:

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

on \_\_\_\_\_  
(Date)

Typed or printed name of person signing this certificate:

\_\_\_\_\_  
Signature: \_\_\_\_\_

## Certificate of Transmission

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office, Fax No. (703) \_\_\_\_\_ - \_\_\_\_\_ on \_\_\_\_\_.  
(Date)

Typed or printed name of person signing this certificate:

\_\_\_\_\_  
Signature: \_\_\_\_\_

Please refer to 37 CFR 1.6(d) and 1.8(a)(2) for filing limitations concerning facsimile transmissions and mailing, respectively.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dominic D Saltarelli whose telephone number is (703) 305-8660. The examiner can normally be reached on M-F 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Grant can be reached on (703) 305-4755. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dominic Saltarelli  
Patent Examiner  
Art Unit 2611

DS



HAI TRAN  
**PATENT EXAMINER**